

*Non-official Members.*

- (10) Dr. Brauer (Marburg a/L.), Zoologist.  
 (11) Dr. zur Strassen (Leipzig), Zoologist.  
 (12) Herr F. Winter (Frankfurt a/M.), Scientific Draughtsman and Photographer.

It is proposed to divide the voyage into three periods:—

I. From Hamburg round the north of Scotland, passing the Cape de Verdes to Cape Town, for which 100 days is estimated, Cape Town being reached in the second half of November.

II. From Cape Town, including an examination of the Agulhas Bank and the deep waters to the south, then southwards to the edge of Antarctic ice, returning northwards through the centre of the Indian Ocean to Cocos and Christmas Island and to Padang.

III. From Padang to Ceylon, Chagos, Seychelle, and Amirante Islands, to Zanzibar. Then home by Socotra, the Red Sea and the Mediterranean, Hamburg being reached early in June next year.

On August 1 the *Valdivia* left Hamburg, and was accompanied as far as Cuxhaven by Staats-Secretär von Posadowsky (the Burgomaster of Hamburg), the Directors of the Hamburg-American Line, Prof. Neumayer (Director of the Deutsche Seewarte), and many scientific men. In wishing success to the expedition, the German Minister dwelt upon the importance of a great State like Germany undertaking work of purely scientific character, such as that in which the members of the expedition were to be engaged; although no practical outcome was at present visible from researches of the kind, still the acquisition of new knowledge was, he held, one of the first duties of the State. The Chairman of the Directors of the Hamburg-American Line mentioned in his speech that the Directors considered it a privilege to be able to encourage scientific work; the Company had spared no pains in fitting up the ship and providing it with capable officers, and they expected to lose rather than to make money by the contract that had been entered into.

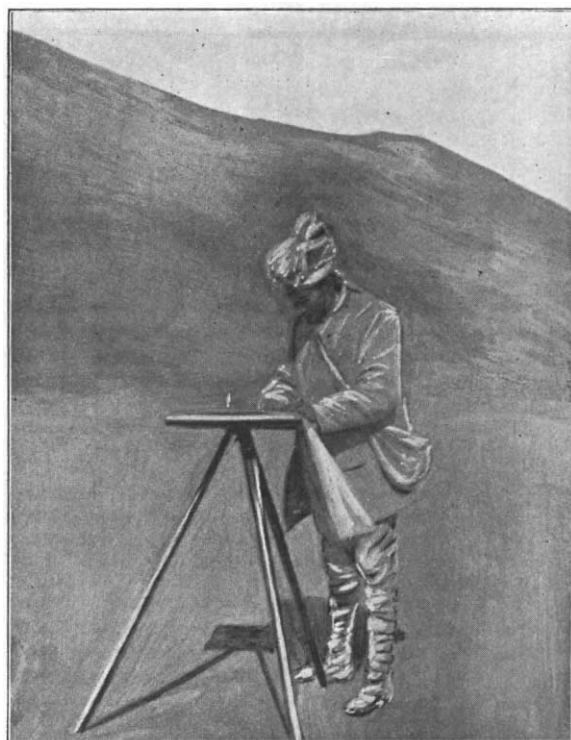
The ship left Cuxhaven at 8 p.m. on August 1, and during the 2nd and 3rd the dredging and some of the other apparatus were tried for the first time with great success. On the evening of the 3rd she anchored in the Firth of Forth, off Granton, for the purpose of taking on board some additional apparatus, and to permit the members of the expedition to examine the *Challenger* specimens of deep-sea deposits, as well as to land Dr. von Drygalski (who has been nominated as the scientific leader of the German South Polar Expedition of 1900), Dr. Pfeffer (of the Hamburg Museum), and Sir John Murray, who had accompanied the *Valdivia* from Hamburg. The members of the expedition were entertained at dinner in Edinburgh on the afternoon of the 4th, and in the evening the ship sailed again for the Faroe Channel. Geheimrath Dr. Mikulicz, professor of surgery in Breslau, joined the expedition at Edinburgh, and will accompany it as far as the Canaries.

*THROUGH UNKNOWN TIBET.<sup>1</sup>*

UNTIL a little more than thirty years ago our knowledge of the Tibetan plateau—one of the most remarkable areas on the earth's surface—was exceedingly small, and was very much the same as it had remained since the journeys of Manning and Bogle in the last century. About 1865, natives of India trained by the officers of the Great Trigonometrical Survey were employed in the exploration of portions of Central Asia inaccessible to Europeans; and in the course of the next ten to fifteen years great additions to our knowledge of Southern Tibet and of the trade routes leading to Lhasa from various directions were made by several intelligent and

enterprising men, especially those known as Nain Singh, A.K., and the Mirza. A series of Russian explorations begun by Przevalski in 1870, continued by him for many years, and further prosecuted after his death by Pevtsov and others, added to our maps the main features of the Northern Tibetan escarpment, whilst considerable additions were made from time to time by Carey, Bonvalot and Prince Henry of Orleans, Rockhill, and other travellers; but still an immense area in the north-western part of the plateau was completely unexplored until 1891. This, the highest part of Tibet, extends at least 600 miles from east to west, and 250 to 300 from north to south; and very little, if any, of its surface is less than 16,000 feet above the sea-level. It is intersected by snow-bearing ranges of mountains, and dotted over with numerous lakes, many of which are salt.

This bleak and barren region is known as the Chang or Chang-tung, and is a wilderness inhabited solely by



Surveying.

wild animals. A few nomads drive their flocks and herds to the lower and more grassy tracts on the border of the high plateau for pasture during the summer, but they appear never to visit the greater part of the area. Here is the especial home of the Tibetan antelope and the wild yak, at all events in the summer.

In 1874-75 a traverse of the plateau from Ladak to Tengri Nor and Lhasa was mapped by Nain Singh; but the region then examined lies at a somewhat lower elevation than the area to the northward, and the latter was first crossed from west to east by Bower and Thorold in 1891. Their route across the Chang, except in the neighbourhood of the Ladak frontier, lay south of the 34th parallel, still leaving a broad area, marked as "unexplored" on the Royal Geographical Society's Map of Tibet, published in 1894, between the 34th parallel and the Kuenlun. Part of this country was crossed from north to south by Littledale in 1895, in his attempt to reach Lhasa from the northward, his route

<sup>1</sup> By M. S. Wellby, Captain 18th Hussars. Pp. xiv + 440. (London: T. Fisher Unwin, 1898.)

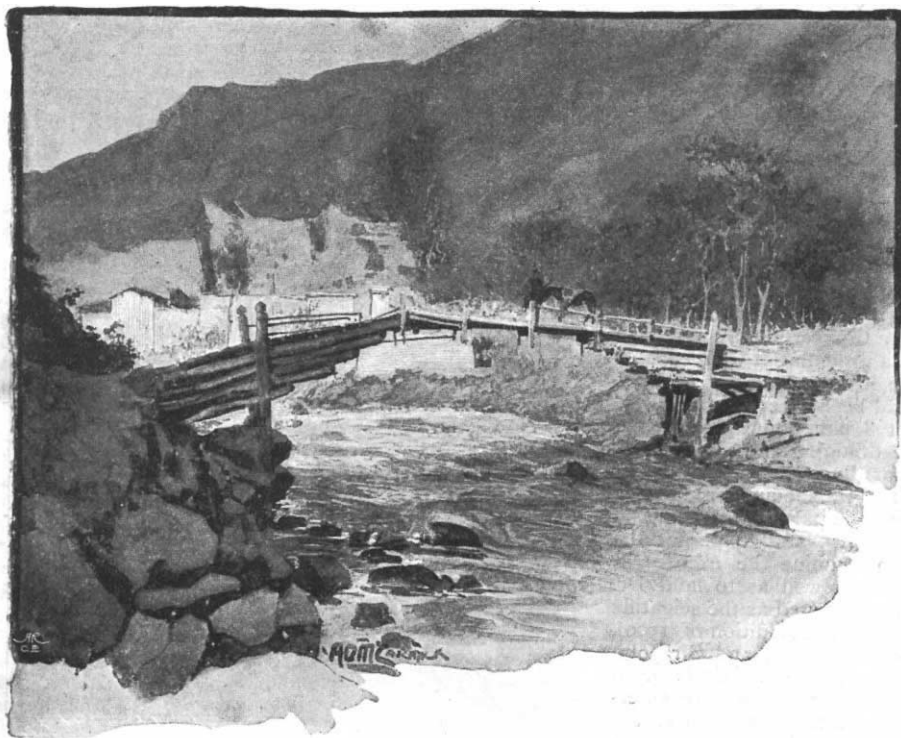
lying rather further west than the traverse of M. Bonvalot and Prince Henry of Orleans; but Littledale's return journey from Tengri Nor westward to Ladak was south of the high Chang throughout. At last, as related in the work now under notice, Captain Wellby and his companion, Lieut. Malcolm, have succeeded in crossing Tibet from west to east by a route that ran for a long distance in the neighbourhood of the 35th parallel, and that admirably intersects the tract hitherto unexplored.

The two travellers started on May 4, 1896, from Leh, in Ladak, with one trained Indian surveyor, Shahzad Mir, duffadar (serjeant) of the 11th Bengal Lancers, who had a considerable experience of Central Asiatic travelling, and ten other men, Ladakis and Yarkandis, as muleteers and servants. The first attempt to penetrate into Tibet by a route across the middle contracted portion of the Pangong lake was frustrated by Tibetan opposition; and after Captain Wellby's party had gone round the north-western extremity of the lake, and then

Koko-nor, to reach on October 14 the frontier town of Tankar (the Donkir or Donkyr of maps) in the Chinese province of Kansu. Here a friendly missionary—Mr. Rijnhart—was found, who, having occasion to go eastward, accompanied the travellers down the Great Yellow River of China and as far as Peking. In company with Mr. Rijnhart a visit was paid to the great Kumbum Monastery near Tankar, and at Sining Mr. Ridley, of the Inland China Mission, gave an account of the Kansu Mahommedan rebellion of 1895-6, which had just been suppressed. The remainder of the journey through China, though of interest, contains descriptions of countries already comparatively well known.

The "Unknown Tibet" of the title is of course the region traversed between the Ladak frontier and Tsaidam, and the journey, of which a good route map has been made, has added greatly to our knowledge of the region. The country is very similar to that a little to the southward, described by Captain Bower, and

appears to differ in no great degree, except in its almost arctic climate, from the usual type of Central Asiatic scenery. Wild yak, Tibetan antelopes and kyang abounded in those parts of the area in which grass and fresh water were obtainable, the chief other animals mentioned being the Tibetan gazelle or goat, a large wild cat (probably a lynx), hares and marmots. Some of the latter appear to have been very large, and if they attain the dimensions attributed to them by Captain Wellby, who says they were "of enormous size, as large as men," it is probable that some unknown form was seen by him. Bears were only met with to the eastward. It is impossible to help regretting that neither of the travellers appears to have had any knowledge of zoology or geology, and it is difficult to avoid contrasting them in these respects with most of the Russian explorers.



Bridge in China, five miles from Tankar.

travelled for some ten marches to the eastward, they were again stopped by the people of Rudok, compelled to recross a formidable pass, the Napu-la, and to go north as far as the Lanak-la before they could resume their journey to the eastward. After this their course lay first to the north-east for about 100 miles, and then in an eastwardly direction, no human beings being met with from the Lanak pass, close to the Ladak frontier in longitude  $80^{\circ}$  on May 29, until more than three months afterwards, when a travelling camp of Tibetan merchants on their way from Lhasa to Kansu in China was accidentally overtaken on September 6, close to the 93rd meridian. From these merchants, whose great caravan of 1500 tame yak is well described, the travellers met, on the whole, with hospitable treatment, and shortly after leaving the caravan they found some friendly Mongolian nomads, by whose aid Captain Wellby and his party, now greatly reduced in numbers, were enabled to pass through part of Tsaidam, and, after skirting

On two occasions (pp. 76, 110) fossils appear to have been observed, but we remain in ignorance of what they were. The only specimens brought back consisted of plants, of which a list is given. It is, however, only right to say that these specimens were brought back despite most serious difficulties through deficiency of carriage, and that, in addition to the geographical observations, careful records were kept of barometrical and thermometrical readings.

On the whole the journey would have been a great success but for the loss of the muleteers, and the sad fate of at least two of them. These two men, one of whom was sick and the other dangerously injured by a gun accident, were left behind with a supply of food and a pony in the middle of the wilderness. No more was heard of them. Three weeks later the remaining muleteers struck work, and left in a body, and, although one subsequently was taken on again, the travellers refused to take back the others, who had behaved badly throughout. As the

men, five in number, were, when last seen, fully 300 miles from Lhasa, to which place they had declared their intention of proceeding, as they had little or no food, and the country all around was uninhabited, it is very probable that they all perished from starvation. Out of the ten muleteers and servants who had left Leh, only three reached the Chinese frontier with the two European travellers and the Indian surveyor.

Of thirty-nine mules and ponies, but three mules survived the hardships of travel, and during the latter part of their journey in Tibet, before meeting the merchants' caravan, the travellers appear to have lived chiefly on game—not always easily procurable—and wild onions.

The account of the journey is well written and fairly illustrated, although, as is so frequently the case, some of the "process blocks" used for cuts illustrate very little except the imperfections of the photographs from which they are copied. It is questionable whether any useful information is afforded by figures like those on pp. 180, 200 and 238. Unfortunately, too, the best views are from the accessible regions of Kashmir and China, not from "Unknown Tibet"; but this is easily understood. The scenery in the Tibetan wilderness is difficult to photograph, and the time of the travellers must have been fully occupied with more urgent matters. The two examples herewith given will serve as specimens of the illustrations.

#### MEETING OF THE BRITISH MEDICAL ASSOCIATION.

THE meeting of the British Medical Association, which has just terminated at Edinburgh, must be regarded as a great success, both with regard to business and pleasure. At the end of July there is a strong predisposing cause towards holiday; and an excitant which draws the medical man towards so favourite an area for holiday-making as Scotland at this time of the year is naturally welcome to all. A congress is a very good beginning to a holiday, as the recollection of it tends to alleviate what is often the boredom of idleness; and doubtless thoughts born of discussion in Edinburgh are now being developed and bearing fruit a hundredfold in the remoter holiday-taking places of Scotland.

In giving in these columns a short account of the business accomplished at the meeting, it will be best, perhaps, to limit one's attention to those regions of medicine and the allied sciences which are of interest to the general scientific reader.

An interesting address in medicine was delivered by Dr. Fraser. He reviewed succinctly the importance with regard to diagnosis of modern bacteriological method, and then proceeded to give some account of the toxic origin of infectious diseases, emphasising the great activity of some toxins killing as they do—at least, in the case of the tetanus toxin—six hundred million times their own weight of living tissue. He then passed on to consider the production of artificial resistance to disease, and the origin of the protection-producing substances, concluding his lecture with a brief review of the present state of serum therapeutics.

Dr. George Balfour gave an interesting address upon a personal experience of an almost forgotten episode in medical history, the episode in question being the treatment of pneumonia by blood-letting. The lecturer gave an amusing account of how he was treated at the hands of the local medical autocrats of the time when he advocated the abandonment of blood-letting in this disease.

Sir William Broadbent opened a discussion on the significance and consequences of different states of vascular tension with their general management. He

discussed the different clinical conditions giving rise to increased and diminished vascular tension respectively, and indicated the lines of treatment appropriate to each. He did not enter into the vexed question of the accurate measurement of blood pressure in man, and practically limited his remarks to arterial tension.

Prof. Bradbury, of Cambridge, read a paper upon the management of general vascular conditions with special reference to the use of erythrol tetra-nitrate. This drug, it will be remembered, was introduced by Prof. Bradbury as a result of experiments made by him and Mr. Marshall at Cambridge some few years ago. Its vasodilating action is less transient than that of the vasodilators hitherto at the command of the physician. Prof. Bradbury's later experience seems in every way to have confirmed the earlier results he obtained with this drug. Dr. Haig emphasised the significance of uric acid in the production of high arterial tension.

A discussion was opened by Dr. Alexander James on the clinical varieties of hepatic cirrhosis. An interesting paper was communicated in this connection by Prof. Adami, of Montreal. The author pointed out that the experimental injection of alcohol, although resulting in fatty degeneration of the liver, only gives rise to a very slight amount of cirrhosis, the typical hobnailed liver having never been produced experimentally. He also referred to the views of Hanot, who regards the enlarged cirrhotic liver associated with jaundice as being of an infectious origin. The author then described his own researches, which were made in connection with a very remarkable disease affecting cattle in a limited area of Nova Scotia, the main lesion of this disease being extensive cirrhosis of the liver. From all the animals he obtained a characteristic micro-organism, which apparently presented considerable resistance to staining reagents. Time has not yet permitted the author to make cultures of this organism, but he is about to do so. His results in this connection will be awaited with considerable interest.

Prof. MacCall Anderson pleaded for the more general use of tuberculin. He thinks much might yet be done with tuberculin in cases of consumption if it were combined with suitable hygienic and dietetic measures. The open-air treatment of consumption received much consideration, many of its votaries giving their results.

The meetings of the Section of Psychology were especially interesting. In the presidential address given by Dr. T. S. Clouston upon "The Neuroses and Psychoses of Decadence," the lecturer contrasted these with the neuroses of development. He pointed out that man's normal average life may be divided into three periods of twenty-five years each; he then proceeded to give statistics which tended to show that the neuroses prevail largely in the period of brain growth and development of function, the very best years of life being very free from them. They come on during decadence with a rush and to a far more deadly degree than even during development, senility being the most deadly period of all.

Dr. John Sibbald opened the discussion upon Suicide, its Social and Psychiatric Aspects. The author contributed a paper giving the statistics of suicide for England, Wales and Scotland. He showed that the rate of suicide per annum per million of population had risen during the past thirty years from sixty-seven to eighty-six in England and from forty to fifty-four in Scotland. He then proceeded to give statistics with regard to the methods of suicide. Dr. Haigh read a paper on the cause of suicide, the all toxic uric acid according to this author playing here a most important rôle. Dr. Morselli, of Genoa, contributed an interesting paper on the characteristics of suicide by the insane as compared with those of suicide by the sane. On Friday, the 29th, this Section proceeded to consider the subject